

Appl. No. 10/796,700
Amdt. dated August 18, 2004
Reply to Office Action of June 30, 2004

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. A method for processing integrated circuit devices including a water recycling process, the process comprising:
 - operating a chemical mechanical planarization process, the chemical mechanical planarization process including a discharge for process water, the process water being used to process one or more semiconductor wafers;
 - selectively discharging process water from the discharge;
 - transferring the process water from the chemical mechanical planarization process to a facility process; and
 - using the discharged water in the facility process;

wherein the facility process is selected from at least a cooling tower and/or a local scrubber.
2. (Canceled)
3. The method of claim 1 wherein the discharge water is characterized by a pH value ranging from about 6 to about 10.
4. The method of claim 1 wherein the discharge water is characterized by a conductivity is less than about 2000 μ siemens per centimeter.
5. The method of claim 1 wherein the selectively discharging is provided using a control valve coupled to the discharge, the control valve being coupled to computer hardware.
6. The method of claim 1 wherein the discharge includes a plurality of lines, each of the lines being coupled to one or more processing stations.

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7. The method of claim 1 wherein the transferring to the facility process comprises transferring to a collection tank before transferring the discharge water to the facility process.

8. The method of claim 1 wherein the selectively discharging comprises outputting a signal in response to process in computer software to open a valve to release the process water.

9. The method of claim 1 wherein the process water is ultra-pure water having a resistivity of about 18 Mega-ohms.

10. The method of claim 1 wherein the transferring of the process water from the chemical mechanical planarization process to a facility process occurs free from any chemical treatment between the chemical mechanical planarization process and the facility process.

11. (Currently Amended) A method for processing integrated circuit devices including a water recycling process, the process comprising:

operating a chemical mechanical polishing process using an incoming stream of ultra-pure water, the chemical mechanical polishing process including a discharge for used ultra-pure water;

using the ultra-pure water [being used to process] to clean one or more semiconductor wafers while a flow of any chemical species have been stopped to the one or more semiconductor wafers, the used ultra-pure water [and discharged through the discharge to form] forming a facility water;

selectively discharging the facility water from the discharge of the chemical mechanical polishing process and transferring the facility water from the discharge of the chemical mechanical polishing process to a facility process, the discharged process water

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[transferring] being free from any chemical treatment from the discharge to the facility process
[of the discharged process water]; and

using the discharged process water in the facility process.

12. The method of claim 11 wherein selectively discharging is provided by a valve coupled to the chemical mechanical planarization process.

13. The method of claim 11 wherein the ultra-pure water is characterized by a resistance of about 18 mega-ohm.

14. The method of claim 13 wherein the ultra-pure water is substantially free from particles greater than about 0.05 microns in dimension.

15. The method of claim 11 wherein the transferring the facility water from the discharge of the chemical mechanical polishing process to a facility process includes storing the facility water in a storage facility before use by the facility process.

16. The method of claim 15 wherein the facility process is selected from a cooling process, a scrubbing process.

17. (Currently Amended) A system for chemical mechanical polishing, the system comprising:

a plurality of processing stations, each of the processing stations being configured to perform at least one processing operation;

a discharge line coupled to one or more of the processing stations to receive discharge water;

a first valve coupled to a chemical input line to introduce chemical species to one or more of the processing stations;

a second valve coupled to an ultra-pure water line to introduce ultra-pure water to at least one or more of the processing stations;

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a third valve coupled to the discharge line to selectively output the discharge water for use in a facility process while the first valve for introducing chemical species to one at least one or more of the processing stations is closed; and

a drain line coupled to the discharge line for outputting the discharge water to a drain;

whereupon the discharge water is substantially used ultra-pure water free used for a rinse process associated with one or more of the processing stations.

18. The system of claim 17 further comprising a computer system coupled to the valve, the computer system including one or more memories, the one or more memories including a first code directed to actuate the value to output the discharge water for use in the facility process.

19. The system of claim 17 wherein the discharge line comprises a plurality of lines.

20. The system of claim 17 further comprising a source line for ultra-pure water coupled to one or more of the processing stations, the ultra-pure water being discharge water after being used by one or more of the processing stations.

21. (New) A method for processing semiconductor wafers, the method comprising:

introducing ultra-pure water into a chemical clean process for semiconductor wafers in a chemical mechanical polishing tool;

processing the semiconductor wafers using the ultra-pure water and selected chemical species;

transferring the used water including the ultra-pure water and the selected chemical species to a drain for recycling or removal;

stopping flow of the chemical species;

rinsing the semiconductor wafers using the ultra-pure water;

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transferring the used ultra-pure water to a facility line;
using the used ultra-pure water in a facility process.

22. (New) The method of claim 21 wherein the facility process is selected from a cooling process or a scrubber process.